

# **HONEYWELL** **1010CB PRESET** **CONTROLLER**

Powerful, Smart And Accurate For Petroleum  
Terminal Loading Operations.



**Honeywell**

# FLEXIBLE, SMART AND EASY TO USE

New 1010Ax-CB series Load Computer gives you smart control of the loading procedure on up to two arms at petroleum refinery and oil marketing terminal gantries. For custody transfer to road tankers, it offers all the measurement and control functions needed for chemicals, bitumen, asphalt, petroleum, LNG, LPG and more.

Offers advanced functionalities like pulse verification as per API and IOS standards. Contains industrial standard temperature and volume corrections tables. Precise load control with digital control valve operations and configurable I/O with touch key readers and internal additive injector control.

**GLOBAL EXPERIENCE, LOCALLY APPLIED.**





# A FLEXIBLE, SCALABLE ANSWER

Simultaneously controlling up to two arms, our load computer provides a wide range of functionality built for ease of use, low cost of ownership and smart integration.

Customize it to your needs. Suitable for a wide range of petrochemical products, special application packs can be tailored for specific operating areas. Use in Stand Alone mode or integrate into your terminal automation system for local or remote authorization for Loading and Unloading operations.

## PRECISION CONTROL

Control the flow profile with digital valve control to ramp up at the start of the load and down towards the end, while field proven fine-tuning algorithm ensures accurate control for all major brands of digital control valves. Ten points Non Linear correction means flow signals from a wide range of flow meters are measured accurately.

## BUILT ACCORDING TO API MPMS STANDARDS

An MID and ATEX approved design and precision flow measurement, including pulse verification to API standards.

## SAFE AND SECURE

The Touch keys and the reader are internationally certified for use in hazardous areas. Security functions include illegal access lockout and multi-level security settings with password protection.

## EASY TO USE

Easy to install, configure and operate.



Configurable I/O, Flash downloadable firmware and a powerful diagnostics mode simplify commissioning and fault-finding. Each input and output can be individually tested or activated to ensure the wiring and interface are correct prior to running a complete load. It also features a userfriendly configuration menu, customizable features and large backlit LCD display.

## INTEGRATION OPTIONS

Interfaces with Honeywell's Terminal Manager. Three isolated serial communication ports and two TCP/IP (IEEE 802.3 10/100 Base-T

standard) Ethernet ports provide high immunity in noisy environments to communicate with terminal automation systems, Internal additive controllers, and NexWatch card reader.

## BUILT TO LAST

A resilient design includes ruggedized truck-driver-proof keyboard, and the compact and robust explosion proof enclosure. The touch keys, meanwhile, aren't corrupted by heavy use, unlike magnetic cards.

## TYPICAL 1010AX-CB CONFIGURATION

Enclosure sealed to IP66 or Nema 4x

Explosion proof enclosure USA/  
Canadian approved Class 1, Div 1,  
Groups C&D, T6 ATEX approved  
© II 2G Ex db IIB T6 Gb  
IECEX Ex db IIB T6 Gb.

Large Dot Matrix LCD display  
with LED backlighting

Large internal area for cabling

Alphanumeric keyboard



Program Setup  
Switch (sealable)

NOTE: The touchkey reader is available as part of MSG selection

New 1010CB  
Weights and measures approved

## FEATURES AND BENEFITS

### Flexible and Powerful

- Customizable
- Simplified Chinese language support
- Standalone mode
- 16 recipes for blending/additives
- 1000 transaction logs
- 2000 audit trail logs
- Straight, Ratio and Side stream blending
- Power failure resume batch

### Precise and Compliant

- Temperature, pressure and density correction
- Built according to API MPMS standards

### User Friendly

- Flash downloadable firmware
- Configurable I/O
- Large backlit LCD with adjustable contrast
- 18 alphanumeric keys

### Integrated

- Interfaces with Honeywell Terminal Automation Systems
- Allows 3rd Party TAS interface via SLIP+, Modbus RTU and Modbus TCP/IP
- 3 Isolated Serial RS485 communication ports
- Two TCP/IP (IEEE 802.3 10/100 Base-T standard) Ethernet ports

### Resilient

- Rugged push buttons
- Explosion proof NEC 500/505
- Flame-proof ATEX & IECEX
- Diagnostics program

### Secure

- Integrated touch key reader
- Honeywell NexWatch card reader
- Local or remote authorization
- Driver and truck ID (2,750 each)
- Illegal access lockout
- Multi-level security with password protection

# ADVANCED FUNCTIONS

## INDEPENDENT OPERATION

Stand-Alone mode provides a low-cost loading system for unmanned bulk stations. The 1010 can provide complete control of the loading rack, with simultaneously loading on up to 2 arms:

- Authorizing drivers and vehicles
- Prompting entries for arm number, compartment number and preset quantities
- Prompting and checking connections for vehicle earths and overfill

Able to manage both single or multicompartment vehicle. New 1010Ax-CB can store the last 1000 vehicle loads in memory. Transactions can be downloaded to a computer system at a later date, and by handling it all independently, without reference to the automation system, the workload on the office computer is significantly reduced.

1010 uses the SLIP+, Modbus RTU and Modbus TCP/IP protocol for highly reliable, secure and efficient information transfer.

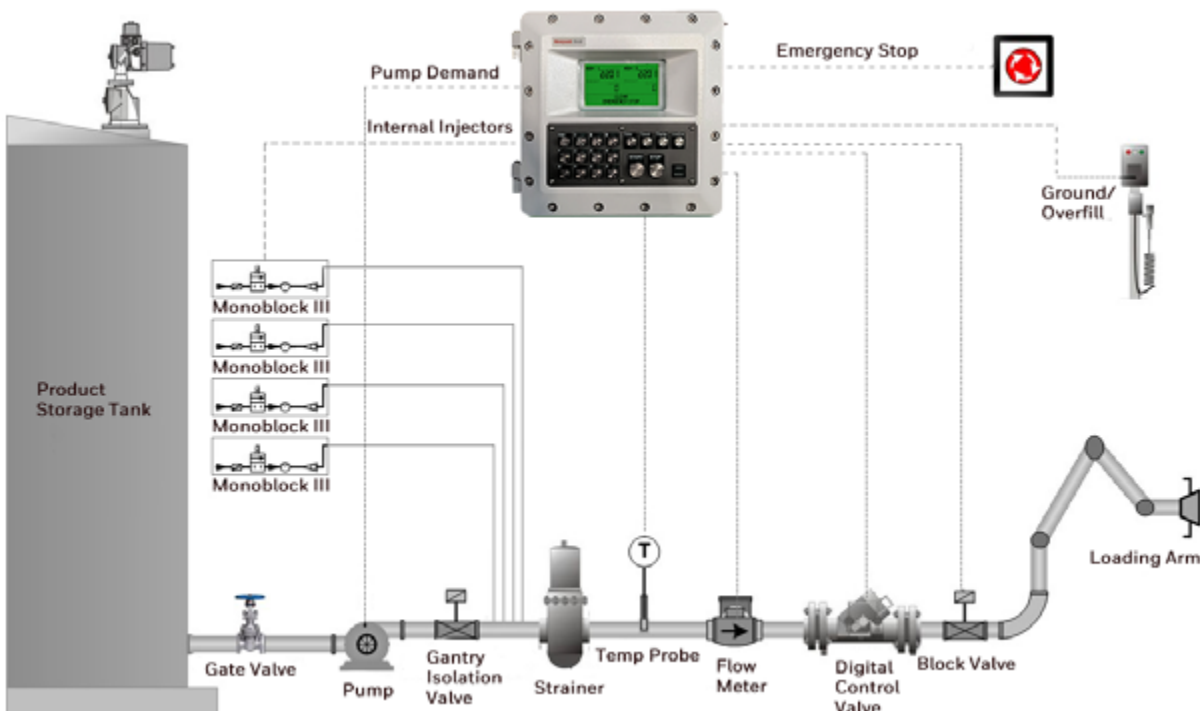
## A TOUCH MORE RELIABLE

The 1010 Load Computer uses touch key technology for secure, reliable and resilient identification and access control.

Identification keys transmit a unique number laser etched onto their microchip that is read by the load computer when pressed against the reader. Authorization can be granted by the 1010 against a database of valid key numbers stored internally or by the office automation computer. With no battery and an unlimited lifespan, touch keys are available as a key ring tag in a number of colours or with the touch button mounted on a plastic card or badge.

## The 1010C features a range of advanced flow measurement and control functions for complete control of the loading and unloading operation:

- Digital Control Valve
- Analog Control Valve
- Two Stage Valve
- Upto 4 Internal Additive Control
- Pump demand outputs with programmable delays
- Overfill/Ground Input
- Vapour Recovery Permissive and for LNG/LPG configurable Vapour Recovery meter support
- Programmable permissive inputs
- Programmable Outputs (for Alarms / RIT)
- Programmable Inputs (for Generic interlocks)
- Emergency stop function
- Configurable I/O





For reasons of safety and/or preference, many other components may be included. For the sake of simplicity, such components are not illustrated. Picture is for representational purposes only.

# PROGRAMMABLE SET-UP PARAMETERS

VALVE CONTROL	
No Flow Time out	0 to 999 s
Valve Type Digital	Digital, Analog and Two Stage
Slow Flow	200 to 800 L/min or U.S. gallon/min
Deadband	1 to 500 L/min or U.S. gallon/min
Response Time Factor	0.2 to 1.0
Prestop Quantity	0 to 9999999 L or U.S. gallons
Max. Preset Quantity	0 to 9999999 L or U.S. gallons
STREAM CONTROL	
Blending type	Straight, Ratio and Side Stream Blending
ARM INPUT (FOR EACH ARM)	
Pulse Type (Flow meter)	Single or Dual
Dual Pulse cut-off freq.	0 to 99 Hz
K-factor	– Linear: Single point 0.001 to 50000.0 – Non-linear: 10 points 0.001 to 50000.0
Temp.Correction	Temperature Volume correction as per the ASTM D1250-04
Fluid Temperature Range	-50 °C to +150 °C (-58 °F to +302 °F) and for LNG -200 °C to +50 °C
Pressure Correction	0 to 15168.47 kPa (based on Commodity Group selection)
Density Correction	331.7 to 1163.86 kg/m <sup>3</sup> (based on Commodity Group selection)
Flow rate at Full Flow	3000 L/min or U.S. gallon/min
Additive Output Pulse Rate	per 0 to 999 L or U.S. gallons
Pre-Batch Stop Quantity	250 L or U.S. gallons
Accumulated Total	0 to 99 999 999
COMMUNICATIONS	
Communications Device	TAS/NexWatch/WeighBridge [ASCII protocol]
Protocol	SLIP+, MODBUS RTU, MODBUS TCP/IP
Communication Mode	Ethernet/RS232/RS485 (RS232 Port1 only)
Baud Rate	300 to 38400 Bd
Parity	None/Odd/Even
Stop Bits	1 or 2
Gantry Number of Unit Address	1 to 127
OUTPUTS	
Additive Injector Type	Internal additives
Pulse Output	110/240 Vac
Number of injectors	Up to 4 Internal injectors per arm
OTHER OPTIONS	
Customizable Initial Messages	– System Available – Connect Ground/Overfill – Connect Vapour Recovery
ALL ENABLE/DISABLE options	– Test Mode – Ask Load Number – Automated Proving – Simultaneous Arm Loading – Illegal Access – Multiple Loads Per Arm – Alarm on Fault – Ask Preset Quantity – Ask Compartment No – Max Preset Quantity – Ask Return Quantity – Deadman Timer – Ask Truck Number – Ask Loading Type (Top/Bottom)

# TECHNICAL SPECIFICATIONS

PHYSICAL	
Enclosure Dimensions	302 mm x 288 mm x 326 mm (WxHxD)
Material	Powder coated aluminium
Sealing	IP66 (NEMA 4X) weatherproof, fully O-ring sealed
Mounting	Four 8 x 1.5 mm metric or 5/16" UNF threaded holes top and bottom
Weight	Single enclosure - 22.5 kg (approx); Shipping weight - 23.0 kg (approx)
Cable Connection	Five 25 mm x 1.5 mm metric threaded holes
OPERATIONAL	
Power Requirements	95 to 135 Vac, 50/60 Hz; 190 to 260 Vac, 50/60 Hz
Operating Temperature (Ambient)	-10 °C to +60 °C (without optional heater) -20 °C to 60°C ( with optional heater)
Communications	NexWatch: Ethernet/RS232/RS485 (RS232 Port 1 only) WeighBridge (ASCII Protocol)
INPUTS AND OUTPUTS	
Flow Inputs Input Frequency	0 to 2000 Hz. Single or dual (quadrature) inputs on each channel Note: Dual pulse is for pulse verification only and does not detect reverse flow.
Pulse Integrity	(Dual pulse only) If a pulse failure is detected the system will alarm and stop flow on that channel. Note: This is in accordance with API Standards Chapter 5, Section 5, AS2702 and ISO6551, Level B.
K-factor	Linear: Single point 0.001 to 50000.0; Non-linear: 10 points 0.001 to 50000.0
Temperature Inputs: Input Signal	4-20 mA or 4 wire RTD
Range	-50 °C to +150 °C (-58 °F to +302 °F) and for LNG -200 °C to +50 °C
Input Circuit	16 bit A/D converter
Volume Correction	Temperature and pressure volume correction as per the API MPMS Chapter 11.1: <ol style="list-style-type: none"> <li>1. Refined (Tables 24B, 54B and 60B)</li> <li>2. Crude Oils (Tables 24A, 54A and 60A)</li> <li>3. Lube Oils (Tables 24D, 54D and 60D) Temperature volume correction as per the API MPMS Chapter 11.1, Special Application:</li> <li>4. Gasohol (using thermal correction factor)</li> <li>5. MTBE (using thermal correction factor) Generic thermal correction factor based on the ASTM D1250-04 calculations:</li> <li>6. Manual entry of correction factor temperature volume correction as per the Manual of Petroleum Measurement Systems (MPMS) for Light Hydrocarbon Liquids (Chapter 11.2.4)</li> </ol>
Pressure / Density: Input Signal	4-20mA
Range	Input based on Commodity Group
Input Circuit	16 bit A/D converter
Overfill and Ground Inputs	Switched input from floating contact Note: Relays on the overfill and ground systems must be floating (i.e. not connected to other circuits) and suitable for switching low voltage signals
Emergency Stop Input	Switched input from floating contact Note: Switches or relays on this input must be floating (i.e. not connected to other circuits) and suitable for switching low voltage signals
Valve Control Outputs	(2 stage on/off or digital control valves) Isolated Solid State Relays (SSRs) rated 1 A @ 240 Vac Note: SSRs are not suitable for switching dc voltages <ul style="list-style-type: none"> <li>- Contact voltage: Min. 24 Vac / Max. 265 Vac</li> <li>- Optical Isolation: 2500 Vrms</li> <li>- Current range: 0.02 to 1 A</li> <li>- Max. surge current: 20 A</li> <li>- Max. off-state leakage current: 20 mA</li> <li>- Analog Control Valve : 1 x 4-20mA Output</li> </ul>
Additive Injector Outputs	SSR rated at 1A @ 240 Vac (one per product)
Pump Demand Outputs	Electromechanical relay rated at 1A @ 240 Vac or 30 Vdc (one per loading arm)
Alarm Outputs	Electromechanical relay rated at 1A @ 240 Vac or 30 Vdc
Power Outputs	12 Vdc for flow meters (250 mA max); 8-30 Vdc for temp. sensors (100 mA max)
APPROVALS	
The 1010Ax-CB complies with OIML R117-1 and MID international metrology approvals.	Hazardous area approvals for the enclosure include: <ul style="list-style-type: none"> <li>- European Approval  II 2G Ex db [ia] IIB T6 Gb</li> <li>- IECEx Ex db IIB T6 Gb</li> </ul> Approvals for the touch keys, reader and barrier include: <ul style="list-style-type: none"> <li>- European Approval  II 2G Ex db [ia] IIB T6 Gb</li> <li>- USA and Canadian CSAus/c for Class 1, Groups C&amp;D, T6</li> <li>- IECEx Ex db [ia] IIB T6 Gb</li> </ul>
EMC STANDARD	
EN50081-1 & EN50081-2, EN50082-1 & EN50082-2, EN61000-6-4 (2001) Important: Specifications are subject to change without notice.	



# IDENTIFICATION CODE MODEL 1010CB

Pos 1, 2, 3, 4, 5 Model

1 0 1 0 A

## GRAPHICAL DISPLAY, EXPLOSION PROOF ENCLOSURE

### Pos 6 Number of Loading Arms

- A One Arm Load Computer controlling 4 Internal Additive Injectors (Total)
- B One Arm Ratio/Blending Load Computer controlling 4 Internal Additive Injectors (Total)
- C One Arm Side-Stream Blending Load Computer controlling 4 Internal Additive Injectors (Total)
- D Two Arm Load Computer controlling 4 Internal Additive Injectors (Total)
- E Two Arm Load Computer each with Ratio Blending and 2 Internal Additive Injectors per Arm
- F Two Arm Load Computer, One Straight Product, One Side-Stream Blending, controlling 4 Internal Additive Injectors (Total)
- K One Arm Load Computer, LNG/LPG with Configurable Vapor Return Meter

### Pos 7 Separator, Pos 8, 9 Application Pack, Pos 10 Separator

— C B —

### Pos 11 Authorisation

- 1 None/NextWatch Card Reader Interface/ PIN (User Selectable)
- 2 Touch Key

### Pos 12 Glands, Approval & Heater

- A IECEx Approved for 5 Mertric Glands
- M ATEX Approved for 5 Mertric Glands
- N ATEX Approved for 5 Mertric Glands and Heater

### Pos 13 Power Supply

- 1 110 V AC
- 2 240 V AC
- 3 DC

### Pos 14 Display Type

- N Dot Matrix

### Pos 15 Weight & Measure Approval

- 0 None
- 3 MID (OIML R117-1)

### Pos 16 Communication Interface (Ports)

- 1 Serial (03 Nos.)
- 2 Ethernet (02 Nos.) and Serial (03 Nos.)

1 0 1 0 A A — C B — 1 M 2 N 3 1  
1 0 1 0 A — C B — — N —

**Typical Identification Code**

**Your Identification Code**

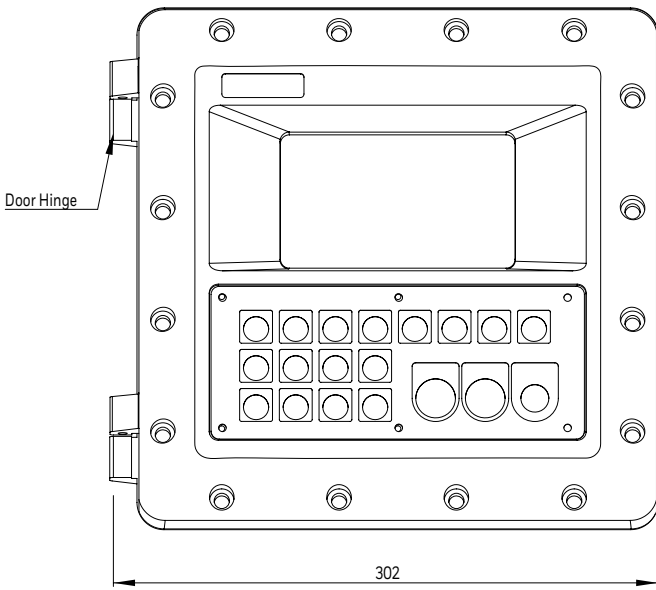
Note: CF = Consult Factory

## ACCESSORIES

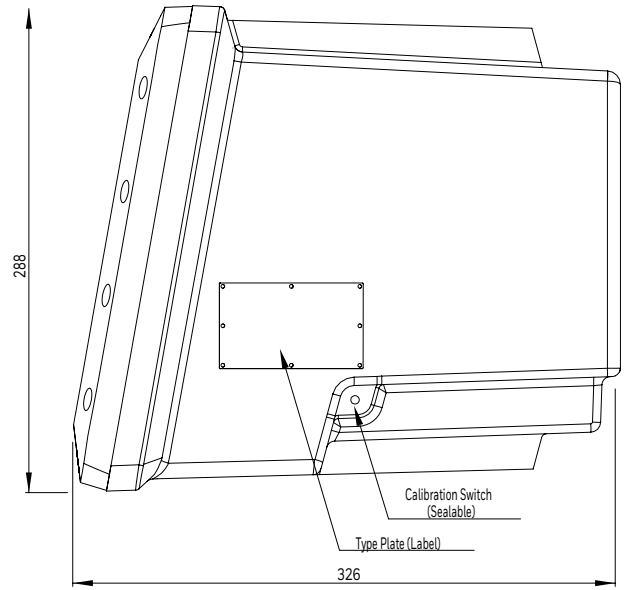
Part Number	Description
TK1010-BLUE	Touch key ROM on Blue holder
TK1010-GREEN	Touch key ROM on Green holder
TK1010-YELLOW	Touch key ROM on Yellow holder

# DIMENSIONAL DRAWING

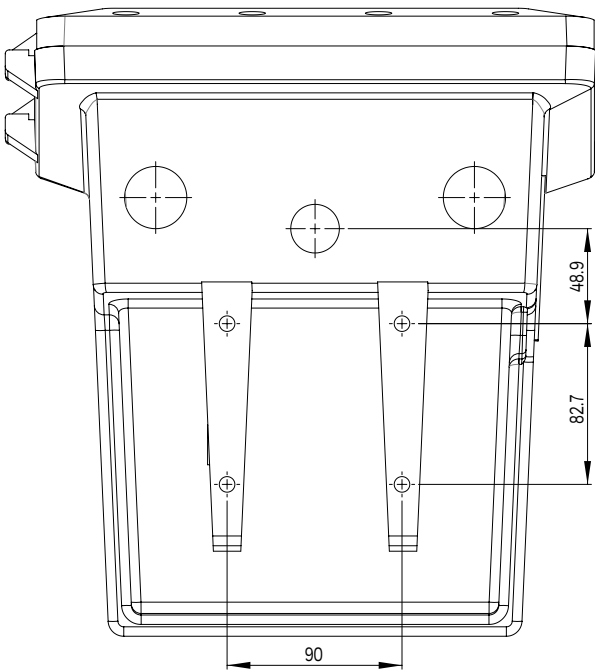
## Explosion Proof Enclosure



**FRONT VIEW**



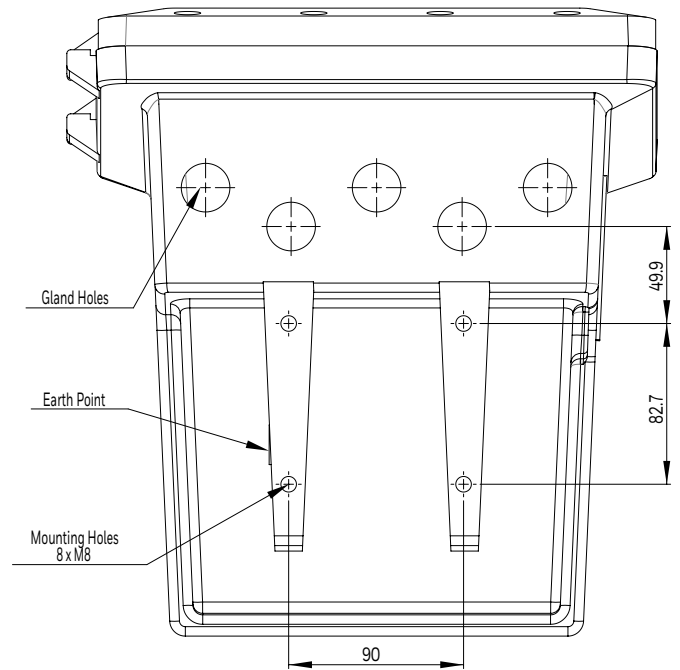
**SIDE VIEW**



Enclosure with 2 x 1 1/4" NPT and 1 x 1" NPT Gland Holes

**BOTTOM VIEW**

Note: All Length/Width dimensions are in mm



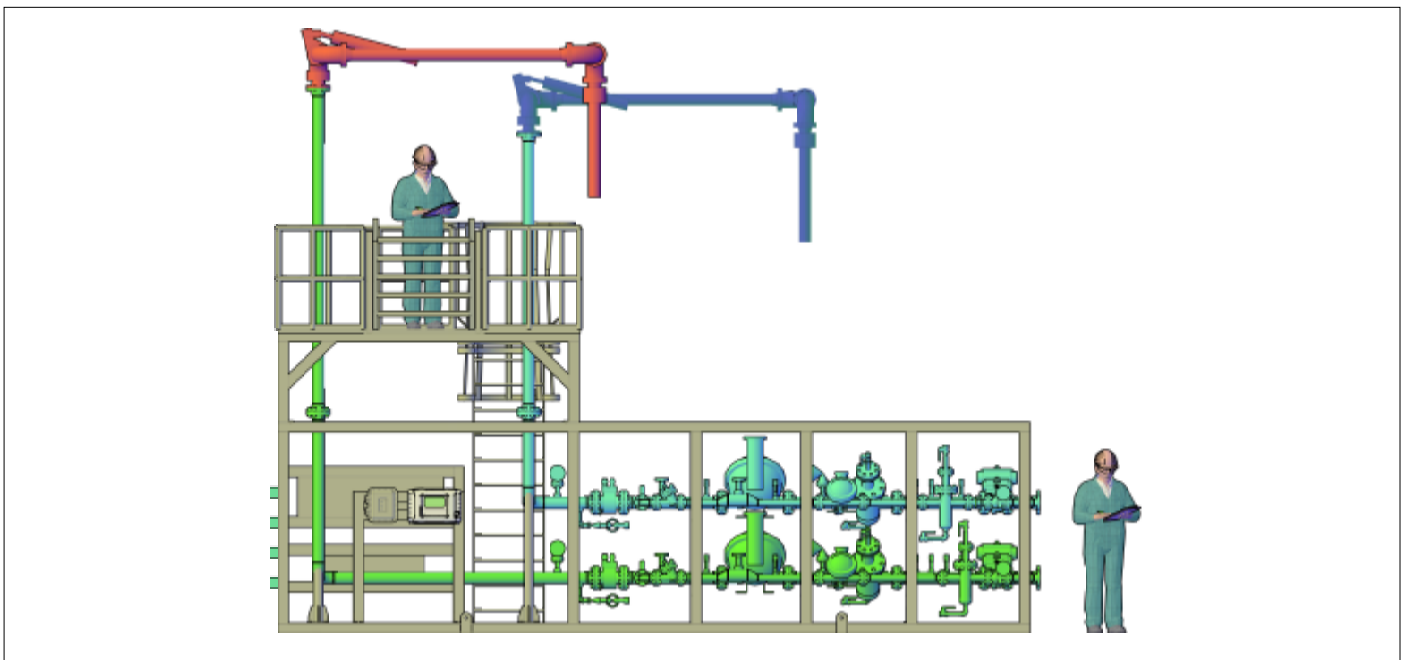
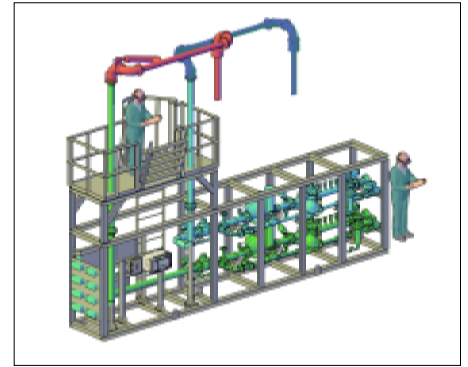
Enclosure with 5 x M25 Gland Holes

# DISCOVER HONEYWELL TERMINAL PRODUCTS PORTFOLIO

## Loading Skids:

Honeywell provides pre-fabricated engineered loading and off-loading assemblies for all types of petrochemical bulk terminals, marine, rail and biofuels storage/distribution facilities. The solutions are totally integrated, modular and scalable, suitable for customers building a green field site or expanding/upgrading an existing one.

For more information navigate to [www.honeywellprocess.com](http://www.honeywellprocess.com)



## Fusion4 Products:

Powerful but simple, meet our ground-breaking Loading management system for accurate Loading, Blending and Additive Injection operations.

Our Fusion4 Products provide Scalable, Versatile, Easy to Use, Lower cost of Ownership, Smart Integration features to Control Terminal Operations without compromising on Safety, Accuracy and Compliance.



SSC-A / SSC-B



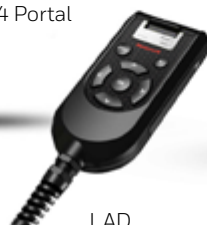
Fusion4 Portal



MSC-L



MSC-A



LAD

**For more information**

To learn more about Honeywell's  
Enraf New 1010CB Preset Controller,  
visit [www.honeywellenraf.com](http://www.honeywellenraf.com)  
or contact your Honeywell account manager.

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FUTURE  
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